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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,416	12/30/1999	Iksoo Pyo	042390.P7452	7822

7590 08/14/2003

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EXAMINER

DINH, PAUL

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/476,416

Applicant(s)

PYO ET AL.

Examiner

Paul Dinh

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

### DETAILED ACTION

This is a response to the amendment with RCE filed on 6/23/03.

#### Specifications

The specification is objected to because it does not clearly describe the feature “fixed” in “fixed points/nodes” as recited in claims 1, 9, 15, 20, 22, and 27.

#### Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Independent claims 1, 9, 15, 20, 22, 27 recite “fixed points/nodes”. Therefore, the “fixed points/nodes” feature must be shown/labeled in the drawings or the “fixed points/nodes” feature canceled from claims 1, 9, 15, 20, 22, and 27.

No new matter should be entered.

#### Claim Rejections - 35 USC § 112

*The following is a quotation of the first paragraph of 35 U.S.C. 112:*  
*The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.*

Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1 and similarly recited claims 9, 15, 20, 22, 27 are rejected because the “fixed” feature in the newly added limitation “identifying a feasible route between fixed points/nodes in a layout” finds no clear support in the specification. The applicant adds the above-mentioned new limitation without addressing what figure/page/lines/element in the specification/drawings that support the newly added “fixed” feature. The examiner, however, re-read the entire specification, and finds that the specification does not clearly support/describe the “fixed” feature in “fixed points/nodes” recited in independent claims 1, 9, 15, 20, 22, 27.

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Claims 2-8, 10-14, 16-19, 21, 23-25, 28-30 are rejected because they depend from claims 1, 9, 15, 20, 22, 27, respectively.

*The following is a quotation of the second paragraph of 35 U.S.C. 112:  
Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

Claim 6 is rejected because the phrase "may be" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Note that "to be" is acceptable.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

*(e) The invention was described in-*

*(1) An application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or*

*(2) A patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).*

1. Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishikawa. (USP 6122443) who discloses a method/apparatus/medium comprising:

(Claims 1-2 and similarly recited claims 9, 15, 20, 22, 27)

identifying partial feasible routing solutions corresponding to each of a subset of a set of wires to be routed; each of the partial feasible routing solutions identify a feasible route between **fixed** points/nodes in a layout (fig 12-15/29-35/42/57-58)

merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed (fig 32-34).

*(Note that the limitations:*

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a. *“a maze router” and “a deferred merging router” in claim 22 are merely the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitation.*

b. *“that do not conflict” in claim 15 is merely a result; therefore, it cannot be relied upon to define over prior art that meets the claimed structural limitation. Just for the applicant information, the hardware/software/fig1-65 teach, the feasible routing solutions or possible routes performed without conflicts, i.e., by the verification/decision/check/evaluating/determining /correcting/violation cancellation sections/block/modules)*

(Claims 3-4, 16, 21, 28-29) abstract/background/summary/c15-20, 22, 26, 28-31 teaches user and cost function. Note that the limitations *“first/second user/one or more users”* are merely an intended uses; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitations.

(Claims 5, 17, 30) program/software/algorithms/fig 8-65/intended set-up/procedure teach routing solutions are limited to a first and a second numbers.

(Claim 6) merging partial feasible solutions in a routing tree (/abstract/background/summary/fig 12/25-34/42/57), wherein the number of partial feasible solutions at each node of the routing tree [may be] to be limited according to a user specified limitation (c15-20, 22, 26, 28-31)

(Claims 7, 11) identifying first/second partial feasible solutions (fig 8-65); adding an obstacle to the first partial solution (constraint/limitation/restriction as taught in this reference)

Note that *“Hanan”* is merely the intended use; therefore, it cannot be relied upon to define over prior art that meets the claimed structural limitation.

(Claims 8, 10) identifying a different partial feasible routing solution are repeated until there are no more or until a user specify function limitation on the number of partial feasible routing solutions has been reach, which ever come first (fig 8-65/ c15-20, 22, 26, 28-31)

(Claims 12-14, 19, 26) determining a cost of each partial routing solution according to user-specified cost function (abstract/background/summary/c15-20, 22, 26, 28-31). Note that the limitations *“first/second user/engine or one or more users”* are merely the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitation.

(Claim 18) tree structure (abstract/background/summary/fig 8-65)

(Claims 23, 26) cost estimating (engines) and user specified (abstract/background/summary/c15-20, 22, 26, 28-31). Deferred merging router is *merely* the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitations.

(Claims 24-25) the maze router and the deferred merging router are *merely* the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed limitation.

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2. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker et al. (USP 5822214) who discloses a method/apparatus/medium comprising:

(Claims 1-2 and similarly recited claims 9, 15, 20, 22, 27)

identifying partial feasible routing solutions corresponding to each of a subset of a set of wires to be routed; each of the partial feasible routing solutions identify a feasible route between **fixed** points/nodes in a layout (c58-60);

merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed (c58-60).

*(Note that the limitations:*

a. *“a maze router” and “a deferred merging router” in claim 22 are merely the intended use; just for applicant info, c61 teaches maze router*

b. *“that do not conflict” in claim 15 is merely a result. Just for the applicant info, c60 teach “no conflict”*

(Claims 3-4, 16, 21, 28-29) user and cost function (c45). Note that the limitations “*first/second user/one or more users*” are merely an intended uses; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitations.

(Claims 5, 17, 30) program/software/algorithms/fig 69-72/intended set-up/procedure teach routing solutions are limited to a first and a second numbers.

(Claim 6) routing tree (fig 69-72)

(Claims 7, 11) identifying first/second partial feasible solutions (c58-60/fig 69-72)

Note that “Hanan” is merely the intended use; therefore, it cannot be relied upon to define over prior art that meets the claimed structural limitation.

(Claims 8, 10) identifying a different partial feasible routing solution are repeated until there are no more or until a user specify function limitation on the number of partial feasible routing solutions has been reach, which ever come first (fig 69-72)

(Claims 12-14, 19, 26) determining a cost of each partial routing solution according to user-specified cost function (c45). Note that the limitations “*first/second user/engine or one or more users*” are merely the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitation.

(Claim 18) tree structure (fig 69-72)

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(Claims 23, 26) cost estimating user specified (c45). Deferred merging router is *merely* the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed structural limitations.

(Claims 24-25) the maze router and the deferred merging router are *merely* the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed limitation. Just for applicant info, c61 teaches maze router.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is (703) 305-5662. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (703) 308-1323. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number 703-308-1782.

Paul Dinh  
Patent Examiner  
July 31, 2003

  
MATTHEW SMITH  
SUPERVISORY PATENT EXAMINER  
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